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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,510	02/14/2005	Masaru Ohta	265435US2PCT	6171

22850 7590 09/06/2006

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ALEXANDRIA, VA 22314

EXAMINER

LE, THAO P

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/524,510

Applicant(s)

OHTA ET AL.

Examiner

Thao P. Le

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/14/05, 4/4/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Acknowledge is made of applicants' claim for foreign priority base on an application 2002-242509 filed in Japan on 08/22/2002, and application 2003-23602 filed in Japan on 01/31/2003.

It is noted that Applicants have filled a certified copy of said application as required by U.S.C 119, which papers have been placed of record in the file.

Information Disclosure Statement

Information Disclosure Statement (IDS) filed on **02/14/2005**, **04/04/2005** and made of record. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 13 are rejected under 35 USC 102 (b) as being anticipated by Asai, U.S. Patent No. 6,525,275.

Regarding claim 1, Asai discloses the method for forming bumps 11 (Fig. 6b) on electrode pad 8, comprising performing at least the following steps (a) to (d) for a wiring board comprising a substrate and a plurality of electrode pads (lines 35-65, Col. 3):

a) a step of forming a laminated two-layer film (Fig. 6c) on the wiring board and forming a pattern of apertures at positions corresponding to the electrode pads, the laminated two-layer film including a lower layer comprising an alkali-soluble radiation-nonsensitive region composition (layer 5, lines 58-60, Col. 7, the resins such as phenolic resin, epoxy resin, polyimide resin etc... disclosed in Asai is alkali-soluble radiation nonsensitive resin), and an upper layer comprising a negative radiation-sensitive region (layer 6, lines 50-57, Col. 9; the material used in layer 6 is negative radiation sensitive resin);

b) a step of filling a low metal melting metal in the aperture pattern (Fig. 6b, it is inherent that the solder 11 is low melting metal for reflowing under heat treatment, Figs. 7, 8a);

c) a step of reflowing the metal by pressing or heating to form bumps (Figs. 7, 8a);

d) a step of peeling and removing the laminated two layer film from the board (Fig. 8a).

Regarding claims 2-3, Asai discloses the radiation nonsensitive resin is phenolic hydroxyl group (lines 57-61, Col. 7, the phenolic resin is also a phenolic hydroxyl resin) and the radiation sensitive resin is acrylic resin (lines 53-56, Col. 9).

Regarding claim 4, Asai discloses the lower layer is formed in dry film (fig. 6c).

Regarding claim 5, Asai discloses the upper layer is formed in dry film (Fig. 6c).

Regarding claim 6, Asai discloses the laminated two layer film comprises a to-layer dry film including the lower and upper layers.

Regarding claim 13, Asai discloses the metal formed in the aperture pattern is solder.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai, U.S. Patent No. 6,525,275.

Regarding claims 7-12, the limitations cited in claims 7-12 are well known in the art, such as, the step (d) is performed with use of a peeling apparatus having multistage immersion baths containing an organic solvent, the substrate comprises silicon, glass epoxy resin, and insulating region interlayer and a conductive circuit formed on the substrate.

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thao P. Le', with a stylized, flowing script.

Thao P. Le
Primary Examiner
Art Unit 2818
August 24, 2006.